

PATENT ABSTRACTS OF JAPAN

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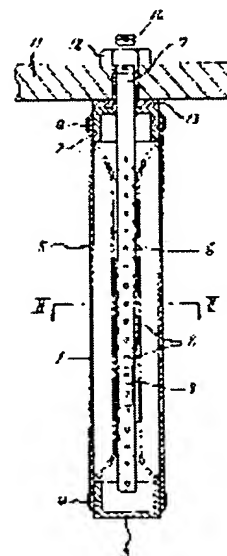
(54) EXPANDING AND CONTRACTING FILTER

(57)Abstract:

PURPOSE: To prevent the clogging of a filter by wrapping a filtrate collecting member in a filter consisting of a flexible filter sheet by the inward pressure of the filter in filtration, flattening the filter and expanding the filter by the outward pressure of the filter when the cake is released.

CONSTITUTION: This filter is formed by a cylindrical or bag-shaped filter 5 consisting of a flexible filter sheet 1 and a filtrate collecting member 6 inserted into the filter 5 and with one end projecting outside the filter. The collecting member 6 is wrapped in the filter 5 by the inward pressure of the filter 5 in filtration, and the filter is flattened.

Conversely, the filter is expanded by the outward pressure of the filter 5 when the cake is released. A filtrate guide passage 9 opened in the filter 5 and used for sending the filtrate in the filter 5 outside the filter 5 is provided to the collecting member 6. Consequently, the clogging of the filter due to the deposition of oxides in filtration is prevented, and the cake is sufficiently and surely released.



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CLAIMS

(57) [Claim(s)]

[Claim 1] It is inserted into tubed or a saccate filter, and the above-mentioned filter, and consists of a ***** collection member which projects an end out of a filter. The above-mentioned filter While consisting of a flexible filtration sheet, wrapping the above-mentioned ***** collection member with the pressure to inside [from] outside this filter at the time of filtration and flattening It is the pinch-and-swell mold filter which has the filtrate guidance way which carries out opening of the above-mentioned ***** collection member into the above-mentioned filter, and leads the filtrate in this filter out of a filter by the ability deforming freely so that it may expand with the pressure to outside [from] among these filters at the time of filter residue exfoliation.

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DETAILED DESCRIPTION

[Detailed Description of the Invention]

(Field of the Invention)

This invention relates to the filter used for recovery of the valuables from filtration of the suspension produced in case purification processing of various industrial waste fluid, the sanitary sewage of water and sewage, etc. is carried out, concentration, or various industrial waste fluid etc.

(Prior art)

The filter made of cloth is conventionally put on the peripheral face of the hollow cylinder object made of hard synthetic resin which has many dipping holes in a peripheral surface through spacers, such as a network, as this kind of a filter. The thing of the double pipe structure which inserted filtrate ***** in this cylinder inside of the body, and the thing except the above-mentioned double pipe structure to filtrate *****, Or a ceramic etc. is the porous hollow cylinder object which consists of hard material, there is a thing of single tubing structures, such as that from which the porous side constitutes a filter, and it sets to use. Attach these filters in a processing tub and the undiluted solution fed by the filter external surface is filtered. The filter residue which took out filtrate out of the tub through the hollow cylinder inside of the body while catching filter residue by the filter appearance, and was deposited on the necessary filter external surface after filtration progress The approach of exfoliating from filter external surface and taking out out of a tub is performed by making the pressurization air sent to the hollow cylinder inside of the body flow backwards outside from inside in a filter.

(Object of the Invention)

However, conventionally [these], the oxidation deposit of the vessel is carried out by the oxygen in the air to which oxides-ed which are dissolving into filtrate, such as iron ion and manganese ion, remain so much in the cylinder inside of the body in a filter inside at the time of filtration, and this adheres to a filter inside. Start blinding, reduce the filtration capacity of a filter by that cause, there is a fault which shortens the life remarkably, and, moreover, it sets to filter residue exfoliation. If filter residue exfoliation sufficient in the conventional method only depending on the back flow of pressurization air is not obtained but a part of filter residue layer of filter external surface has early exfoliation especially If blinding happens to a filter by oxidation deposit of an oxide-ed mostly and as mentioned above, the case where pressurization air flows out of the part intensively, and a non-exfoliated part is left The blowdown which leads the filter of pressurization air declines, a filter residue exfoliation operation is reduced, non-exfoliated filter residue was stored up by that cause, and they were reducing the engine performance of a filter, economical efficiency, etc. remarkably conjointly.

Un-inventing makes it a technical problem to realize filter residue exfoliation positive enough while preventing the blinding of the filter by oxidation deposit of the oxide-ed at the time of filtration.

(The means for solving a technical problem)

As a means to solve the above-mentioned technical problem, it is this invention. Tubed or a saccate filter, It is inserted into the above-mentioned filter and consists of a ***** collection member which projects an end out of a filter. The above-mentioned filter While consisting of a flexible filtration sheet, wrapping the above-mentioned ***** collection member with the pressure to inside [from] outside

this filter at the time of filtration and flattening. It can deform freely so that it may expand with the pressure to outside [from] among these filters at the time of filter residue exfoliation. The above-mentioned ***** collection member has the filtrate guidance way which carries out opening and leads the filtrate in this filter out of a filter in the above-mentioned filter. A pinch-and-swell mold filter is proposed.

The above "a tubed filter" in this invention is a filter which maintains tubed [of a cylinder, an ellipse cylinder, an rectangular pipe, etc.] mostly in the normal state which a pressure does not join, and a "saccate filter" means the filter which maintains saccate [almost flat] by the normal state which a pressure does not join.

What is cloth, a nonwoven fabric, and the flexible sheet that consists of an ingredient of paper and others versatility, and has filtration capacity above "a flexible filtration sheet" is included.

(Operation)

In this invention pinch-and-swell mold filter of the above configurations. If an undiluted solution is supplied to filter external surface with the pressure to inside [from] outside the filter by the positive pressure from the outside of a filter, or the negative pressure out of a filter. Tubed or a saccate filter wraps a ***** collection member with the above-mentioned pressure, and contracts flatly, where most air inside a filter is eliminated, filtration is started, and it is fully controlled that the iron ion in filtrate, manganese ion, etc. carry out an oxidation deposit in a filter inside by that cause. Pressurization air flows backwards outside from inside in a filter, and exfoliates sufficiently certainly the filter residue which adheres to filter external surface according to both [these] operations from a filter in exfoliation of the filter residue adhering to filter external surface at the same time the filter which was carrying out flat contraction when the pressure to outside [from] was supplied among delivery and a filter in the filter carries out expansion fluctuation of the pressurization air rapidly and it adds the fluctuation impact of this filter side to the filter residue of filter external surface.

With reference to a drawing, the example of this invention is explained below.

(Example)

While fitting a short cylindrical cap (2) and (3) into the opening both ends of the hose-like flexibility filtration sheet (1) which consists of a cheesecloth in Fig. 1st [the] and 2, respectively. The fitting section of both caps (2) and (3) is put firmly on with a band (4), respectively. While penetrating the core of a cap (2) of an end for filtrate ***** (6) of both-ends opening in such a filter (5) by this forming a cylindrical filter (5) and *****(ing) to near the cap (3) of the other end. Where merit's lobe (7) is made to project suitably from the cap (2) of an end, it has fixed to this cap (2) watertight by adhesion, joining, etc. The above-mentioned filtrate ***** (6) is filtrate ***** (8) which becomes the peripheral surface of the part located in a filter (5) from many penetration stomata. -- While carrying out opening, the inside and outside of a filter (5) are made to open for free passage through the opening edge of the above-mentioned lobe (7) by making the vertical through-hole in ***** (6) into a filtrate guidance way (9). (10) is the male screw section which prepared the above-mentioned lobe (7). The above-mentioned lobe (7) is penetrated from the bottom upwards to the dashboard (11) which classifies for example, the inside of a processing tub into a top room and a bottom room for the above a large number books of the filter of structure, a nut (12) is put firmly on the male screw section (10), and it **** to the bottom interior of a room. (13) is packing.

If an undiluted solution is fed to the bottom interior of a room of the above and this supplies an undiluted solution to filter (5) external surface with positive pressure in use. Wrap filtrate ***** (6) like 2a illustration, and it contracts flatly. while a cylindrical flexibility filtration sheet (1) eliminates internal air -- the -- In the part which does not touch filtrate ***** (6) of this sheet (1), the condition of having piled up the sheet inside is taken and filtration is started in the flat condition that air is hardly included in this way. An undiluted solution is filtered all over the flattened filtration sheet (1), and filter residue is caught by the sheet (1) appearance. Filtrate In the part which wraps filtrate ***** (6), filtrate ***** (8) -- is led immediately. In a filtrate guidance way (9). Moreover, in a sheet inside polymerization part, it flows to filtrate ***** (6) through the minute gap of this polymerization part. It is similarly sent in a guidance way (9) from ***** (8) --, respectively, and filtrate hardly touches air by that cause in the

phase which oozed to the inside of a filtration sheet (1). Therefore, there is almost that no the iron ion in filtrate, manganese ion, etc. make an oxidation sludge adhere to a filtration sheet (1) inside. The filtrate sent in the above-mentioned ***** (6) is sent to an above top room through a filtrate guidance way (9), and is taken out by proper piping out of a processing tub here.

At the exfoliating process, the filter residue which carried out adhesion deposition on filter (5) external surface after necessary filtration progress If pressurization air is blown into this ***** (6) from the lobe (7) opening edge of filtrate ***** (6) The air which blew off from filtrate ***** (8) -- and a tubing (6) opening lower limit blows off from inside outside through a filtration sheet (1) at the same time it expands rapidly the filtration sheet (1) which suited the flat condition in the shape of [of the 2nd illustration] a cylinder. The filter residue of filtration sheet (1) external surface is fully exfoliated by the fluctuation impact and air blowdown of a filtration sheet at the time of these expansion.

Filtrate ***** (6) in an upper example is also replaceable with ***** (6a) like the 3rd and 4 illustration, and (6b). ***** (6a) of Fig. 3 It has four filtrate guidance way (9a) -- which becomes the lateral surface from the slot covering the direction overall length of a bus-bar. Open Mizokuchi of each slot is equivalent to filtrate ***** (8a) --, and ***** (6b) of Fig. 4 prepares filtrate ***** (8b) which becomes the peripheral wall of hollow tubing from notching covering the direction overall length of a bus-bar, and makes the interior of tubing a filtrate guidance way (9b). It is the sleeve which inserted (15a) and (15b) in ***** (6a), and inserted (6b) in the upper limit section, and it is good to perform penetration to immobilization and a dashboard (11) with the cap (2) in Fig. 1 in the part of this sleeve. Other examples of Fig. 5th [the] and 6 to the peripheral wall of a part located in the filter (5c) of filtrate ***** (6c) While carrying out insertion pinching of the pars intermedia of the rectangle tabular spacer (17c) which prepares two rate slots (16c) of the direction of a bus-bar, and (16c), and becomes this both rates Mizouchi from a corrugated plate This spacer (17c) and ***** (6c) are banded together with a string (18c), this ***** with a spacer (6c) is inserted into a cylindrical filter (5c), and other structures are the same examples as substantially as Fig. 1st [the] and 2. While a cylindrical filtration sheet (1c) flattens the above-mentioned spacer (17c) easily as a support at the time of positive pressure filtration, it intervenes in a sheet (1c) inside polymerization part, and circulation of filtrate is promoted.

While the filter of the 7th the 8 Fig. sews the flexible filtration sheet (1d) which consists of a nonwoven fabric to flat saccate, forms it in a saccate filter (5d) and inserting filtrate ***** (6d) from the end in this saccate filter The end section of a filter (5d) is put firmly on ***** (6d) in a band (4d), and other structures are substantially [as Fig. 1st / the / and 2] the same. In addition, (19d) is the packing receptacle flange fixed to the lobe (7d) of ***** (6d). the time of the filtration [according to this example] by undiluted solution feeding -- a saccate filter (5d) -- the -- as 8a Fig. continuous line shows, it flattens further, and as this drawing imaginary line shows at the time of the filter residue exfoliation by pressurization air backward feed, it expands in the shape of a cylinder.

Another example of Fig. 9 two or more hollow or solid rods (at this example, they are two hollow rods and four solid rods) to filtrate ***** (6e) which comes to band together with a string (18e) Using filtrate ***** with a spacer (6e) which made the same spacer (17e) as Fig. 5th [the] and 6 pinch, other structures are the same examples as substantially as Fig. 7th [the] and 8. In this example, the slot and space of a lengthwise direction which are formed between adjoining rods also become filtrate guidance way (9e) --. In addition, it is good to prepare the same sleeve as Fig. 3rd [the] and 4 in the upper limit section of the above-mentioned ***** (6e).

Filtrate [a spacer (17f)-cum-] ***** (6f) which comes to prepare filtrate guidance way (9f) -- which consists of a slot on the lengthwise direction in both sides of a rectangular plate is used for still more nearly another example of Fig. 10, and other structures are substantially [as Fig. 7th / the / and 8] the same.

Filtrate [a spacer-cum-] ***** in an upper example of making it filtrate [a spacer (17g)-cum-] ***** (6g) of the 3 direction radial like the 11th illustration is also good, and has been made to perform flattening and expansion in the internal-corner section in which the radiation plate which sews on -- (20g) carries out, and adjoins each radiation point of filtrate [a spacer-cum-] ***** (6g) of the above-mentioned radial forms a saccate filter (5g) in this case.

Moreover, even if the backward feed [the pressurization air for filter residue exfoliation] in a filter through a ***** collection member in each above-mentioned example, when rapid and sufficient expansion of this filter is not obtained, pressurization air supply tubing of dedication can be connected to the above-mentioned filter, or a top room can be made to be able to carry out opening of the upper limit of a filter through a dashboard, and the approach of connecting pressurization air supply tubing to a this top room can be taken. Fig. 12 is the latter example and is making the top room carry out opening of the cap (2h).

(Effect of the invention)

When filtering by supplying an undiluted solution to a filter with the pressure to inside [from] outside a filter according to the pinch-and-swell mold filter of this invention A filter contracts flatly and most internal air is eliminated. By that cause The iron ion in filtrate, It controls that manganese ion etc. carries out an oxidation deposit in a filter inside. When the blinding of a filter can be prevented enough and the back flow of the pressurization air to outside [from] moreover performs filter residue exfoliation among filters The filter residue which adheres to filter external surface by the fluctuation impact of a filter side and the back flow of pressurization air by the rapid expansion of a filter which was carrying out flat contraction can be exfoliated sufficiently certainly.

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DESCRIPTION OF DRAWINGS

[Brief Description of the Drawings]

A drawing shows the example of ****. Fig. 1 the vertical section front view of a filter, and Fig. 2 The II-II line expanded sectional view of Fig. 1, the -- 2a Fig. -- the sectional view of a flat contraction condition same as the above, and the one section each abbreviation expansion slant-face Fig. of the example of everything [Fig. / 3rd / the / and 4] but filtrate ***** -- Filtrate ***** with a spacer in the example of Fig. 5 the expansion cross-sectional view of the example of everything [Fig. / 5] but a filter, and Fig. 6 a part An abbreviation expansion slant-face Fig., Vertical section front view of an example with a filter another [Fig. 7], and Fig. 8 The VIII-VIII line expanded sectional view of Fig. 7, the -- a further different expansion cross-sectional view of an example of a filter and Fig. 12 of the expansion cross-sectional view of an example where as for 8a Fig., as for the sectional view of a flat contraction condition same as the above and Fig. 9, the expansion cross-sectional views of still more nearly another example of a filter differ, and, as for Fig. 10, filters differ, and Fig. 11 are vertical section front views of other examples of a filter.

1, 1a, 1b, 1c, 1d, 1e, 1f, 1g Flexible filtration sheet, 5, 5a, 5b, 5c [.. Filtrate *****, 6f, 6g / .. Filtrate *****, 9 9a, 9b, 9c, 9d, 9e, 9f, 9g / .. Filtrate guidance way.] A tubed filter, 5d, 5e, 5f, 5g .. A saccate filter, 6, 6a, 6b, 6c, 6d .. Filtrate *****, 6e

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(54)【発明の名称】 膨縮型濾過器

1

(57)【特許請求の範囲】

【請求項1】筒状又は袋状フィルターと、上記フィルター内に挿入され、一端をフィルター外に突出する濾液取集部材とからなり、

上記フィルターは、可撓性濾過シートからなり、濾過時の該フィルターの外から内への圧力により上記濾液取集部材を包んで扁平化すると共に、濾滓剥離時の該フィルターの内から外への圧力により膨張するように変形自在であり、

上記濾液取集部材は、上記フィルター内に開口し該フィルター内の濾液をフィルター外へ導く濾液案内路を有する、

膨縮型濾過器。

【発明の詳細な説明】

(産業上の利用分野)

2

本発明は、各種産業廃液や上下水道の汚水等を浄化処理する際に生じる懸濁液等の濾過又は濃縮、あるいは各種産業廃液からの有価物の回収等に使用される濾過器に関する。

(従来技術)

従来、この種の濾過器として、周面に多数の通液孔を有する硬質合成樹脂製の中空円筒体の外周面にネット等のスベーサを介して布製フィルターを被装し、該円筒体内に濾液取集管を挿入した二重管構造のものや、上記二重管構造から濾液取集管を除いたもの、あるいはセラミック等硬質材料からなる多孔性中空円筒体であって、その多孔面がフィルターを構成するもの等の単管構造のものが、使用においては、これら濾過器を処理槽内に取付け、そのフィルター外面に圧送される原液を濾過し、濾滓はフィルター外面で捕捉すると共に濾液は中空

円筒体内を経て槽外へ取り出し、所要の濾過経過後フィルター外面に堆積された濾滓は、中空円筒体内に送った加圧空気をフィルターに内から外へ逆流させることによりフィルター外面から剥離して槽外に取り出す方法が行われている。

(発明が解決しようとする課題)

しかし、これら従来器は、濾過時に濾液中に溶解している鉄イオン、マンガンイオン等の被酸化物が、フィルター内面において円筒体内に多量に残存する空気中の酸素により酸化析出され、これがフィルター内面に付着して、目詰まりを起し、それによりフィルターの濾過能力を低下させ、その寿命を著しく短縮させる欠点があり、しかも濾滓剥離においては、加圧空気の逆流のみに頼る従来法では、十分な濾滓剥離は得られず、特にフィルター外面の濾滓層の一部に早期剥離があると、その部分から集中的に加圧空気が流出して未剥離部分を残す場合が多く、また上記のように被酸化物の酸化析出によりフィルターに目詰まりが起ると、加圧空気のフィルターを通じての吹き出しが減退して濾滓剥離作用を低下させ、それにより未剥離濾滓を蓄積させていき、それらが相まって濾過器の性能、経済性等を著しく低下させていた。

未発明は、濾過時における被酸化物の酸化析出によるフィルターの目詰まりを防止すると共に十分に確実な濾滓剥離を実現することを課題とする。

(課題を解決するための手段)

上記課題を解決する手段として、本発明は、

筒状又は袋状フィルターと、上記フィルター内に挿入され、一端をフィルター外に突出する濾液取集部材とからなり、

上記フィルターは、可撓性濾過シートからなり、濾過時の該フィルターの外から内への圧力により上記濾液取集部材を包んで扁平化すると共に、濾滓剥離時の該フィルターの内から外への圧力により膨張するように変形自在であり、

上記濾液取集部材は、上記フィルター内に開口し該フィルター内の濾液をフィルター外へ導く濾液案内路を有する、

膨縮型濾過器を提案する。

本発明における上記「筒状フィルター」とは、圧力の加わらない通常状態ではほぼ円筒、楕円筒、角筒等の筒状を保つフィルターであり、「袋状フィルター」とは、圧力の加わらない通常状態ではほぼ扁平の袋状を保つフィルターを意味する。

上記「可撓性濾過シート」には、布、不織布、紙その他種々の材料からなる可撓性シートであって濾過能力を有するものを含む。

(作用)

上記のような構成の本発明膨縮型濾過器においては、フィルター外からの正圧又はフィルター内からの負圧によるフィルターの外から内への圧力により原液をフィル

ター外面に供給すると、筒状又は袋状フィルターが上記圧力により濾液取集部材を包んで扁平に収縮し、フィルター内部の空気をほとんど排除した状態で濾過を開始し、それにより濾液中の鉄イオン、マンガンイオン等がフィルター内面において酸化析出することが十分に抑制される。フィルター外面に付着した濾滓の剥離においては、加圧空気をフィルター内に送り、フィルターの内から外への圧力を供給すると、扁平収縮していたフィルターが急激に膨張変動し、このフィルター面の変動衝撃をフィルター外面の濾滓に加えると同時に、加圧空気がフィルターに内から外へ逆流し、これら両作用によりフィルター外面に付着する濾滓を十分確実にフィルターから剥離するのである。

以下図面を参照して本発明の実施例について説明する。

(実施例)

第1、2図において、綿布からなるホース状可撓性濾過シート(1)の開口両端部に短円筒状キャップ(2)、(3)をそれぞれ嵌合すると共に、両キャップ(2)、(3)との嵌合部をバンド(4)によりそれぞれ締着し、それにより円筒状フィルター(5)を形成し、このようなフィルター(5)内に、両端開口の濾液取集管(6)を、一端のキャップ(2)の中心部を貫通して他端のキャップ(3)近くまで縦通すると共に、一端のキャップ(2)から適宜長の突出部(7)を突出させた状態で、該キャップ(2)に接着、溶着等により水密に固定してある。上記濾液取集管(6)は、フィルター(5)内に位置する部分の周面に多数の貫通小孔からなる濾液取集口(8)…を開口させると共に、取集管(6)内の縦通孔を濾液案内路(9)として上記突出部(7)の開口端を通じてフィルター(5)の内外を連通させている。(10)は上記突出部(7)を設けたオネジ部である。上記のような構造の濾過器の多数本を、例えば処理槽内を上室と下室に区分する仕切板(11)に上記突出部(7)を下から上に貫通し、そのオネジ部(10)にナット(12)を締着して下室内に吊支する。(13)はバックリングである。

使用においては、上記下室内に原液を圧送し、それにより原液をフィルター(5)外面に正圧で供給すると、円筒状可撓性濾過シート(1)が内部の空気を排除しつつ第2a図示のように濾液取集管(6)を包んで扁平に収縮し、該シート(1)の濾液取集管(6)に接しない部分ではシート内面を重ね合わせた状態をとり、このように空気ほとんど含まれない扁平状態で濾過が開始される。原液は扁平化された濾過シート(1)全面で濾過され、濾滓はシート(1)外面で捕捉され、濾液は、濾液取集管(6)を包む部分では、直ちに濾液取集口(8)…を通じて濾液案内路(9)内に、又シート内面重合部分では該重合部分の微小間隙を通して濾液取集管(6)に流れ、同様に取集口(8)…から案内路(9)内にそ

れぞれ送られ、それにより濾液は濾過シート（１）の内面にしみ出た段階ではほとんど空気に触れることがなく、従って濾液中の鉄イオン、マンガンイオン等が濾過シート（１）内面に酸化析出物を付着させることがほとんどない。上記取集管（６）内に送られた濾液は濾液案内路（９）を通じて上記上室に送られ、ここで適宜の配管により処理槽外に取り出される。

所要濾過経過後、フィルター（５）外面に付着堆積した濾滓を剥離する工程では、濾液取集管（６）の突出部（７）開口端から加圧空気を該取集管（６）内に吹きこむと、濾液取集口（８）…及び管（６）開口下端から吹き出した空気が、扁平状態にあった濾過シート（１）を急激に第２図示の円筒状に膨張させると同時に濾過シート（１）を通して内から外へ吹き出し、これら膨張時の濾過シートの変動衝撃と空気吹き出しによって濾過シート（１）外面の濾滓を十分に剥離する。

上例における濾液取集管（６）は、第３、４図示のような取集管（６a）、（６b）に代えることもでき、第３図の取集管（６a）は、その外側面に母線方向全長にわたる溝からなる４本の濾液案内路（９a）…を有し、各溝の開放溝口が濾液取集口（８a）…に相当するものであり、また第４図の取集管（６b）は、中空管の周壁に母線方向全長にわたる切欠からなる濾液取集口（８b）を設け、管内部を濾液案内路（９b）としたものである。（１５a）、（１５b）は、取集管（６a）、（６b）は上端部に被嵌したスリーブで、該スリーブの部分で第１図におけるキャップ（２）との固定及び仕切板（１１）への貫通を行うとよい。

第５、６図の他の実施例は、濾液取集管（６c）のフィルター（５c）内に位置する部分の周壁に、母線方向の２本の割り溝（１６c）、（１６c）を設け、該両割り溝内に、液板からなる矩形板状スぺーサ（１７c）の中間部を嵌入挟持させると共に、該スぺーサ（１７c）と取集管（６c）を紐（１８c）で結束し、このスぺーサつき取集管（６c）を円筒状フィルター（５c）内に挿入し、他の構造は第１、２図と実質的に同一の例で、正圧濾過時に円筒状濾過シート（１c）が上記スぺーサ（１７c）を支えとして容易に扁平化すると共に、シート（１c）内面重合部分に介入して濾液の流通を促進する。

第７、８図の濾過器は、不織布からなる可撓性濾過シート（１d）を扁平袋状に縫成して袋状フィルター（５d）に形成し、該袋状フィルター内的一端から濾液取集管（６d）を挿入すると共に、フィルター（５d）の一端部を取集管（６d）にバンド（４d）で締着し、他の構造は第１、２図と実質的に同一である。なお、（１９d）は取集管（６d）の突出部（７d）に固定されたバックリング受けフランジである。本例によれば、原液圧送による濾過時には、袋状フィルター（５d）が第８a図実線で示すようにさらに扁平化し、加圧空気逆送による濾滓剥離時には、同図仮想線で示すように円筒状に膨張する。

第９図の別の実施例は、複数本の中空又は中実棒（本例では２本の中空棒と４本の中実棒）を紐（１８e）で結束してなる濾液取集棒（６e）に、第５、６図と同様のスぺーサ（１７e）を挟持させたスぺーサつき濾液取集棒（６e）を使用し、他の構造は第７、８図と実質的に同一の例である。本例では、隣接する棒の間に形成される縦方向の溝及び空間も濾液案内路（９e）…となる。なお上記取集棒（６e）の上端部に第３、４図と同様のスリーブを設けるとよい。

10 第１０図のさらに別の実施例は、長方形板の両面に縦方向の溝からなる濾液案内路（９f）…を設けてなるスぺーサ（１７f）兼濾液取集板（６f）を使用し、他の構造は第７、８図と実質的に同一である。

上例におけるスぺーサ兼濾液取集板は、第１１図示のように３方向放射状のスぺーサ（１７g）兼濾液取集板（６g）にすることもよく、この場合袋状フィルター（５g）を上記放射状のスぺーサ兼濾液取集板（６g）の各放射先端部に縫着（２０g）…し、隣り合う放射板のなす入隅部で扁平化及び膨張を行うようにしてある。

20 また、上記各例において濾液取集部材を通じて濾滓剥離用加圧空気をフィルター内に逆送しても、該フィルターの急激かつ十分な膨張が得られない場合は、上記フィルターに専用の加圧空気供給管を接続するか、フィルターの上端を仕切板を介して上室に開口させ、該上室に加圧空気供給管を接続する方法をとることができる。第１２図は後者の例で、キャップ（２h）を上室に開口させている。

（発明の効果）

30 本発明の膨縮型濾過器によれば、フィルターの外から内への圧力により原液をフィルターに供給して濾過を行うときは、フィルターが扁平に収縮して内部の空気をほとんど排除し、それにより濾液中の鉄イオン、マンガンイオン等がフィルター内面において酸化析出するのを抑制し、フィルターの目詰まりを十分防止することができ、しかも、フィルターの内から外への加圧空気の逆流により濾滓剥離を行うときは、扁平収縮していたフィルターの急激な膨張によるフィルター面の変動衝撃と加圧空気の逆流とによりフィルター外面に付着する濾滓を十分確実に剥離することができるのである。

40 【図面の簡単な説明】

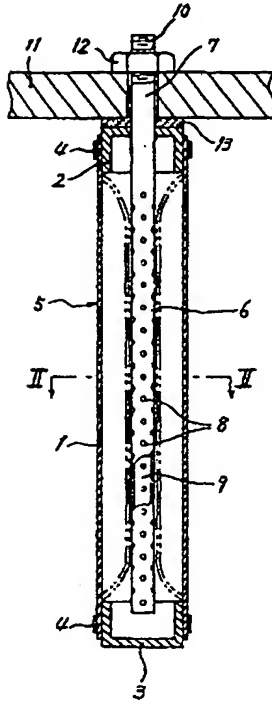
図面は本案の実施例を示し、第１図は濾過器の縦断正面図、第２図は第１図のII-II線拡大断面図、第２a図は扁平収縮状態の同上断面図、第３、４図は濾液取集管の他の例の各一部省略拡大斜面図、第５図は濾過器の他の実施例の拡大横断面図、第６図は第５図の例におけるスぺーサつき濾液取集管の一部省略拡大斜面図、第７図は濾過器の別の実施例の縦断正面図、第８図は第７図のVIII-VIII線拡大断面図、第８a図は扁平収縮状態の同上断面図、第９図は濾過器のさらに別の実施例の拡大横断面図、第１０図は濾過器の異なる実施例の拡大横断面図、第

11図は濾過器のさらに異なる実施例の拡大横断面図、第12図は濾過器の他の実施例の縦断正面図である。

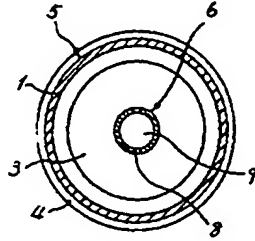
1、1a、1b、1c、1d、1e、1f、1g……可換性濾過シート、5、5a、5b、5c……筒状フィルター、5d、5e、5f、*

* 5g……袋状フィルター、6、6a、6b、6c、6d……濾液取集管、6e……濾液取集棒、6f、6g……濾液取集板、9、9a、9b、9c、9d、9e、9f、9g……濾液案内路。

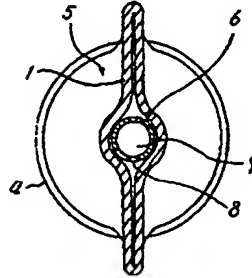
【第1図】



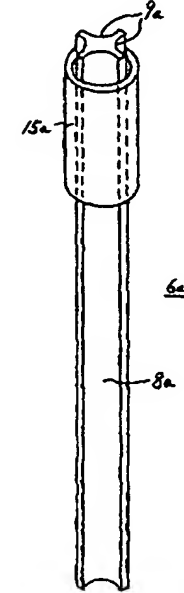
【第2図】



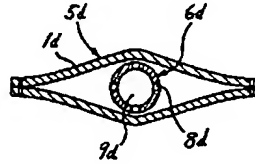
【第2a図】



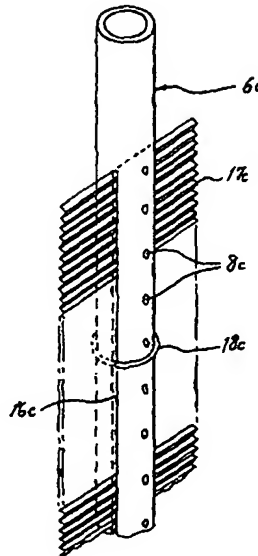
【第3図】



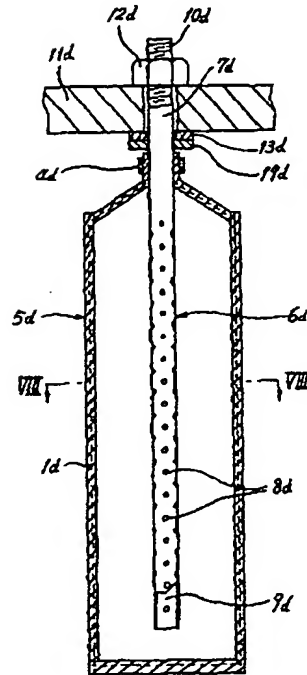
【第8図】



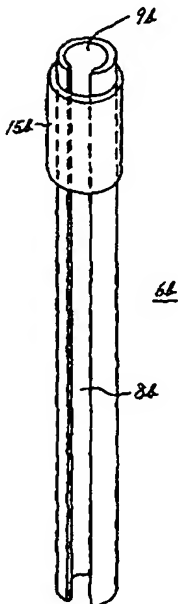
【第6図】



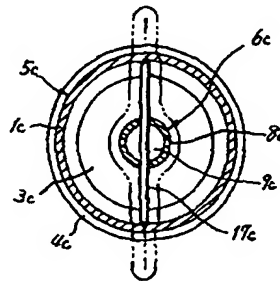
【第7図】



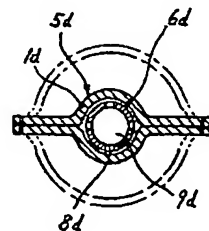
【第4図】



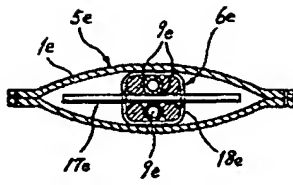
【第5図】



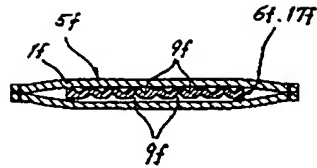
【第8a図】



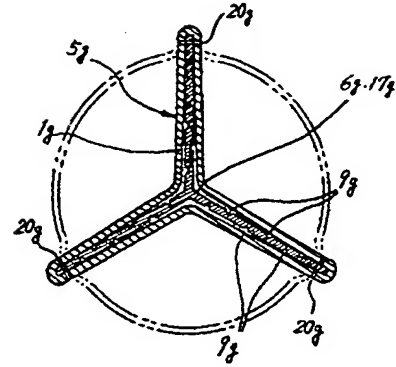
【第9図】



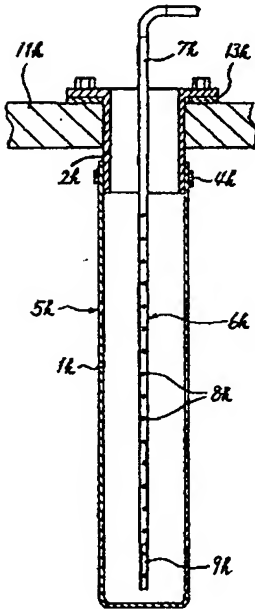
【第10図】



【第11図】



【第12図】



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